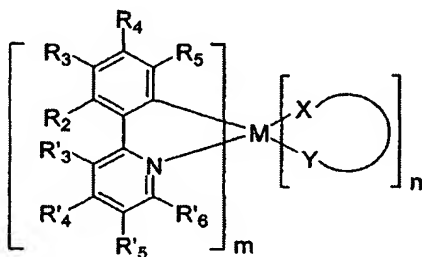


## AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in this application.

### Listing of Claims:

1. (currently amended) An emissive material represented by the structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40;

$R_3$  is a substituent having a Hammett value ~~less than about 0.17, between about 0.15 and 0.05, or~~ greater than about 0.07 0.6;

each of  $R_2$  through  $R_5$  and  $R'_3$  through  $R'_6$  are independently selected from the group consisting of H, halogens, CN,  ~~$CF_3$ ,  $C_nF_{2n+1}$~~  perfluoralkyl, trifluorovinyl,  $NO_2$ ,  $CO_2R$ ,  $C(O)R$ ,  $S(O)R$ ,  $SO_2R$ ,  $SO_3R$ ,  $P(O)R$ ,  $PO_2R$ ,  $PO_3R$ ,  $C\equiv CR$ , alkyl, alkenyl, aryl, heteroaryl, ~~aryl or heteroaryl groups substituted with halogens, CN,  $CF_3$ ,  $C_nF_{2n+1}$ , trifluorovinyl,  $NO_2$ ,  $CO_2R$ ,  $C(O)R$ ,  $S(O)R$ ,  $SO_2R$ ,  $SO_3R$ ,  $P(O)R$ ,  $PO_2R$ ,  $PO_3R$ , OR, SR,  $NR_2$  (including cyclic-amino), and  $PR_2$  (including cyclic-phosphino)~~, where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group;

m is an integer between 1 and 4 and n is an integer between 1 and 3; and,

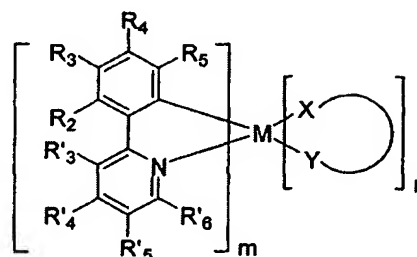


is a monoanionic non carbon coordinating ~~coordinating~~ ~~coordinated~~ ligand.

2. (currently amended) The ~~composition~~ emissive material of claim 1 wherein  $R_4$  is H.
3. (canceled)

4. (currently amended) The ~~composition~~ emissive material of claim 1 wherein ~~R<sub>3</sub> and R<sub>5</sub> are both~~ is an electron withdrawing group[[s]].
5. (canceled)
6. (currently amended) The ~~composition~~ emissive material of claim 1 wherein at least one of R<sub>2</sub> and R<sub>4</sub> is an electron withdrawing group.
7. (currently amended) The ~~composition~~ emissive material of claim 4 wherein at least one of R<sub>2</sub> and R<sub>4</sub> is an electron withdrawing group.
8. (currently amended) The ~~composition~~ emissive material of claim 1 wherein ~~the at least one substituent of the emmissive material is an~~ at least one substituent of the emissive material is an electron withdrawing groups ~~are selected from halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, and aryl or and heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, or PO<sub>3</sub>R, where R is a hydrogen, alkyl, aryl or heteroaryl group~~
9. (currently amended) The ~~composition~~ emissive material of claim 1 wherein ~~at least one of R<sub>3</sub> and R<sub>5</sub> is~~ at least one of R<sub>3</sub> and R<sub>5</sub> is an electron donating group.
10. (canceled)
11. (canceled)
12. (currently amended) The ~~composition~~ emissive material of claim 1 wherein ~~the at least one substituent of the emmissive material is an~~ at least one substituent of the emissive material is an electron donating groups ~~are selected from alkyl, alkenyl, aryl, heteroaryl, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is a hydrogen, alkyl, aryl or heteroaryl group.~~
13. (currently amended) The ~~composition~~ emissive material of claim 1 wherein the metal is selected from Ir, Pt, Pd, Rh, Re, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au, and Ag.
14. (currently amended) The ~~composition~~ emissive material of claim 1 wherein the metal is iridium.
15. (currently amended) The ~~composition~~ emissive material of claim 1 wherein the metal is platinum.

16. (currently amended) A composition represented by the structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40;

~~at least one of R<sub>3</sub> and R<sub>5</sub> is CN a substituent having a Hammett value less than about 0.17, between about 0.15 and 0.05, or greater than about 0.07;~~

each of R<sub>2</sub> through R<sub>5</sub> and R'<sub>3</sub> through R'<sub>6</sub> are independently selected from the group consisting of H, halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, alkyl, alkenyl, aryl, heteroaryl, ~~aryl or heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group;~~

m is an integer between 1 and 4 and n is an integer between 1 and 3;



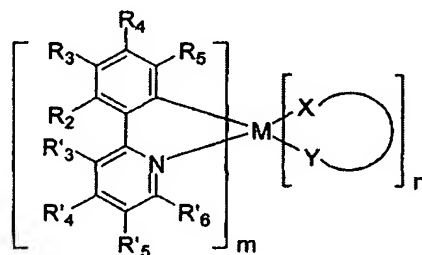
~~is a non-carbon-coordinated monoanionic non carbon coordinating~~  
ligand; and,

~~wherein R<sub>4</sub> is an electron withdrawing group or an electron donating group such that if neither R<sub>3</sub> nor R<sub>5</sub> is an electron withdrawing group then R<sub>4</sub> is an electron withdrawing group and if neither R<sub>3</sub> nor R<sub>5</sub> is an electron donating group then R<sub>4</sub> is an electron donating group.~~

17. (original) The composition of claim 16, wherein neither R<sub>3</sub> nor R<sub>5</sub> is an electron donating group and wherein R'<sub>4</sub> is an electron donating group.

18. (canceled)

19. (currently amended) The composition of claim 16, wherein ~~at least one of R<sub>3</sub> nor R<sub>5</sub> is an electron withdrawing group and~~ R'<sub>4</sub> is an electron donating group.
20. (currently amended) The composition of claim 16, wherein ~~at least one of R<sub>3</sub> nor and~~ R<sub>5</sub> is an electron donating group, and R'<sub>4</sub> is an electron withdrawing group.
21. (currently amended) The composition of claim 16 wherein ~~the~~ at least one substituent of the composition is an electron withdrawing groups ~~are~~ selected from halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, or C≡CR, and aryl ~~or~~ and heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, or PO<sub>3</sub>R, where R is a hydrogen, alkyl, aryl or heteroaryl group.
22. (currently amended) The composition of claim 16 wherein ~~the~~ at least one substituent of the composition is an electron donating groups ~~are~~ selected from alkyl, alkenyl, aryl, heteroaryl, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is a hydrogen, alkyl, aryl or heteroaryl group.
23. (original) The composition of claim 16 wherein the metal is selected from Ir, Pt, Pd, Rh, Re, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au, and Ag.
24. (currently amended) A composition represented by the structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40;

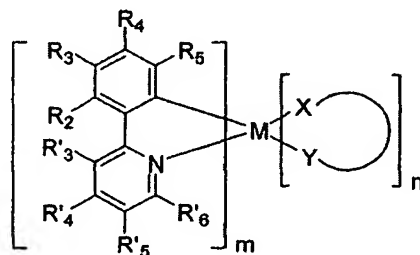
~~R<sub>3</sub> is a substituent having a Hammett value less than about -0.17, between about -0.15 and 0.05, or greater than about 0.07;~~

each of R<sub>2</sub> through R<sub>5</sub> and R'<sub>3</sub> through R'<sub>6</sub> are independently selected from the group consisting of H, halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, alkyl, alkenyl, aryl, heteroaryl,

~~aryl or heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group;~~

at least one of R<sub>3</sub> and R<sub>5</sub> is CN, and, where only one of R<sub>3</sub> and R<sub>5</sub> is CN, the other is ~~being~~ selected from the group consisting of CN, ~~H~~, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, ~~and~~ aryl ~~or~~ ~~and~~ heteroaryl groups substituted with halogens, CN, ~~CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>~~ perfluoroalkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, ~~or~~ C≡CR, where R is a hydrogen, alkyl, aryl or heteroaryl group, wherein m is an integer between 1 and 4 and n is an integer between 1 and 3 and X-Y is non carbon coordinating monoanionic ligand .

25. (canceled)
26. (original) The composition of claim 25 wherein at least one of R<sub>2</sub> and R<sub>4</sub> is F.
27. (original) The composition of claim 26 wherein R'<sub>4</sub> is an electron donating group.
28. (original) The composition of claim 26 wherein R'<sub>4</sub> is NMe<sub>2</sub>.
29. (currently amended) The composition of claim 24 wherein ~~at least~~ one of R<sub>3</sub> and R<sub>5</sub> is CF<sub>3</sub>
30. (original) The composition of claim 29 wherein at least one of R<sub>2</sub> and R<sub>4</sub> is F.
31. (original) The composition of claim 29 wherein R'<sub>4</sub> is an electron donating group.
32. (original) The composition of claim 29 wherein R'<sub>4</sub> is NMe<sub>2</sub>.
33. (currently amended) A light emitting device comprising an organic layer, the organic layer comprising a composition represented by the structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40;

~~at least one of R<sub>3</sub> and R<sub>5</sub> is CN a substituent having a Hammett value less than about 0.17, between about 0.15 and 0.05, or greater than about 0.07;~~

each of R<sub>2</sub> through R<sub>5</sub> and R'<sub>3</sub> through R'<sub>6</sub> are independently selected from the group consisting of H, halogens, CN, ~~CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>~~ perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, alkyl, alkenyl, aryl, heteroaryl, ~~aryl or heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R,~~ OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group;

~~at least one of R<sub>3</sub> and R<sub>5</sub> is optionally either an electron withdrawing group or an electron donating group;~~

m is an integer between 1 and 4 and n is an integer between 1 and 3: and



: is a monoanionic non carbon coordinating ligand.

34. (canceled)

35. (original) The light emitting device of claim 33 wherein R<sub>3</sub> and R<sub>5</sub> are both electron withdrawing groups.

36. (original) The light emitting device of claim 33 wherein R<sub>3</sub> is an electron withdrawing group.

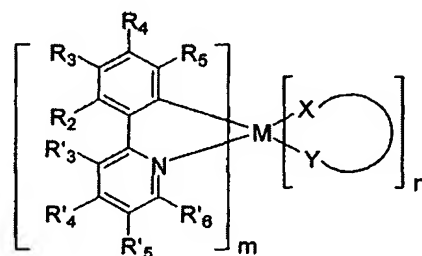
37. (original) The light emitting device of claim 33 wherein R<sub>2</sub> and R<sub>4</sub> are electron withdrawing groups.

38. (original) The light emitting device of claim 33 wherein R<sub>2</sub> and R<sub>4</sub> are electron withdrawing groups.

39. (currently amended) The light emitting device of claim 33 wherein ~~at least one of R<sub>3</sub> and R<sub>5</sub>~~ is an electron donating group.

40. (canceled)

41. (currently amended) The light emitting device of claim 33 wherein the at least one substituent of the emissive material is an electron donating groups ~~are~~ selected from alkyl, alkenyl, aryl, heteroaryl, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is a hydrogen, alkyl, aryl or heteroaryl group.
42. (original) The light emitting device of claim 33 wherein the metal is selected from Ir, Pt, Pd, Rh, Re, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au, and Ag.
43. (original) The light emitting device of claim 33 wherein the metal is Pt.
44. (original) The light emitting device of claim 33 wherein the metal is Ir.
45. (original) The light emitting device of claim 33 wherein light emitted by the organic layer has a maximum wavelength of less than 520 nm
46. (original) The light emitting device of claim 33 wherein light emitted by the organic layer has a wavelength of between approximately 420 nm and approximately 480 nm.
47. (currently amended) A light emitting device comprising an organic layer, the organic layer comprising a composition represented by the structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40;

at least one of R<sub>3</sub> and R<sub>5</sub> is CN ~~a substituent having a Hammett value less than about 0.17, between about 0.15 and 0.05, or greater than about 0.07;~~

each of R<sub>2</sub> through R<sub>5</sub> and R'<sub>3</sub> through R'<sub>6</sub> are independently selected from the group consisting of H, halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, alkyl, alkenyl, aryl, heteroaryl, ~~aryl or heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, OR, SR, NR<sub>2</sub> (including cyclic-~~

amino), and  $\text{PR}_2$  (including cyclic-phosphino), where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group;

at least one of  $\text{R}_3$  and  $\text{R}_5$  is ~~either an electron withdrawing group or~~ optionally an electron donating group;

m is an integer between 1 and 4 and n is an integer between 1 and 3;



is a monoanionic non carbon coordinated ligand; and,

wherein  $\text{R}'_4$  is ~~an electron withdrawing group or an electron donating group~~ such that if neither  $\text{R}_3$  nor  $\text{R}_5$  is an electron withdrawing group then  $\text{R}'_4$  is an electron withdrawing group and if neither  $\text{R}_3$  nor  $\text{R}_5$  is an electron donating group then  $\text{R}'_4$  is an electron donating group.

48. (currently amended) The light emitting device of claim 47, wherein ~~at least one of  $\text{R}_3$  and  $\text{R}_5$  is an electron withdrawing group and~~  $\text{R}'_4$  is an electron donating group.

49. (currently amended) The light emitting device of claim 47, wherein both  $\text{R}_3$  and  $\text{R}_5$  are electron withdrawing groups and  $\text{R}'_4$  is an electron donating group.

50. (currently amended) The light emitting device of claim 47, wherein ~~at least one of  $\text{R}_3$  and  $\text{R}_5$  is an electron donating group and~~  $\text{R}'_4$  is an electron withdrawing group.

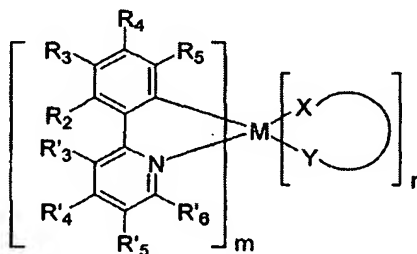
51. (currently amended) The light emitting device of claim 47, wherein  ~~$\text{R}_3$  and  $\text{R}_5$  are electron donating groups and~~  $\text{R}'_4$  is an electron withdrawing group.

52. (currently amended) The light emitting device of claim 47 wherein ~~the~~ at least one substituent of the composition is an electron withdrawing groups ~~are~~ selected from halogens, CN,  $\text{CF}_3$ ,  $\text{C}_n\text{F}_{2n+1}$  perfluoroalkyl, trifluorovinyl,  $\text{NO}_2$ ,  $\text{CO}_2\text{R}$ ,  $\text{C}(\text{O})\text{R}$ ,  $\text{S}(\text{O})\text{R}$ ,  $\text{SO}_2\text{R}$ ,  $\text{SO}_3\text{R}$ ,  $\text{P}(\text{O})\text{R}$ ,  $\text{PO}_2\text{R}$ ,  $\text{PO}_3\text{R}$ ,  $\text{C}\equiv\text{CR}$ , and aryl ~~or~~ and heteroaryl groups substituted with halogens, CN,  $\text{CF}_3$ ,  $\text{C}_n\text{F}_{2n+1}$  perfluoroalkyl, trifluorovinyl,  $\text{NO}_2$ ,  $\text{CO}_2\text{R}$ ,  $\text{C}(\text{O})\text{R}$ ,  $\text{S}(\text{O})\text{R}$ ,  $\text{SO}_2\text{R}$ ,  $\text{SO}_3\text{R}$ ,  $\text{P}(\text{O})\text{R}$ ,  $\text{PO}_2\text{R}$ , or  $\text{PO}_3\text{R}$ , where R is a hydrogen, alkyl, aryl or heteroaryl group.

53. (currently amended) The light emitting device of claim 47 wherein ~~the~~ at least one substituent of the composition is an electron donating groups ~~are~~ selected from alkyl, alkenyl, aryl, heteroaryl, OR, SR,  $\text{NR}_2$  (including cyclic-amino), and  $\text{PR}_2$  (including cyclic-phosphino), where R is a hydrogen, alkyl, aryl or heteroaryl group.



54. (original) The light emitting device of claim 47 wherein the metal is selected from Ir, Pt, Pd, Rh, Re, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au, and Ag.
55. (original) The light emitting device of claim 47 wherein the metal is Pt.
56. (original) The light emitting device of claim 47 wherein the metal is Ir.
57. (original) The light emitting device of claim 47, wherein light emitted by the organic layer has a maximum wavelength of less than 520nm.
58. (original) The light emitting device of claim 47 wherein light emitted by the organic layer has a wavelength of between approximately 420 nm and approximately 480 nm.
59. (currently amended) A light emitting device comprising an organic layer, the organic layer comprising a composition represented by the structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40;

~~R<sub>3</sub> is a substituent having a Hammett value less than about -0.17, between about -0.15 and 0.05, or greater than about 0.07;~~

each of R<sub>2</sub> through R<sub>5</sub> and R'<sub>3</sub> through R'<sub>6</sub> are independently selected from the group consisting of H, halogens, CN, ~~CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>~~ perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, alkyl, alkenyl, aryl, heteroaryl, ~~aryl or heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R,~~ OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group;

m is an integer between 1 and 4 and n is an integer between 1 and 3; and,



is a monoanionic non carbon coordinating ligand[.];

at least one of  $R_3$  and  $R_5$  is CN, and where only one of  $R_3$  and  $R_5$  is CN, the other is being selected from the group consisting of CN H,  $C_nF_{2n+1}$ , trifluorovinyl,  $NO_2$ ,  $CO_2R$ ,  $C(O)R$ ,  $S(O)R$ ,  $SO_2R$ ,  $SO_3R$ ,  $P(O)R$ ,  $PO_2R$ ,  $PO_3R$ ,  $C\equiv CR$ , and aryl or heteroaryl groups substituted with halogens, CN,  $CF_3$ ,  $C_nF_{2n+1}$  perfluoralkyl, trifluorovinyl,  $NO_2$ ,  $CO_2R$ ,  $C(O)R$ ,  $S(O)R$ ,  $SO_2R$ ,  $SO_3R$ ,  $P(O)R$ ,  $PO_2R$ , or  $PO_3R$ , where R is a hydrogen, alkyl, aryl or heteroaryl group.

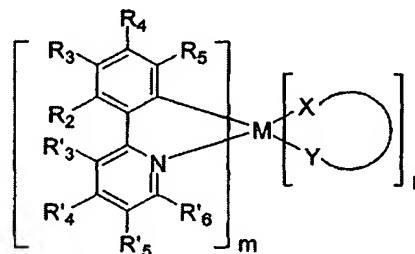
60. (canceled)

61. (currently amended) The light emitting device of claim 60 wherein ~~at least one of  $R_3$  and  $R_5$  is CN, and~~ at least one of  $R_2$  and  $R_4$  is F.

62. (currently amended) The light emitting device of claim 60 wherein ~~at least one of  $R_3$  and  $R_5$  is  $CF_3$ .~~

63. (currently amended) The light emitting device of claim 60 wherein ~~at least one of  $R_3$  and  $R_5$  is  $CF_3$ , and~~ at least one of  $R_2$  and  $R_4$  is F.

64. (currently amended) A composition represented by the following structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40;

~~at least one of  $R_3$  and  $R_5$  is CN a substituent having a Hammett value less than about -0.17, between about -0.15 and -0.05, or greater than about 0.07;~~

each of  $R_2$  through  $R_4$  and  $R'_3$  through  $R'_6$  are independently selected from the group consisting of H, halogens, CN,  $CF_3$ ,  $C_nF_{2n+1}$  perfluoralkyl, trifluorovinyl,  $NO_2$ ,  $CO_2R$ ,  $C(O)R$ ,  $S(O)R$ ,  $SO_2R$ ,  $SO_3R$ ,  $P(O)R$ ,  $PO_2R$ ,  $PO_3R$ ,  $C\equiv CR$ , alkyl, alkenyl, aryl, heteroaryl,

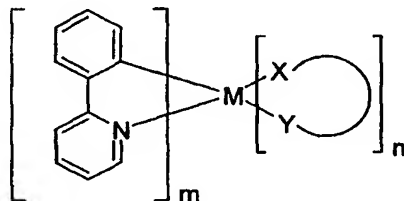
~~aryl or heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group;~~

m is an integer between 1 and 4 and n is an integer between 1 and 3; and,

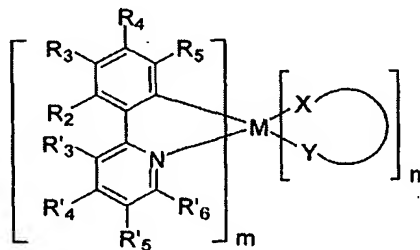


is a monoanionic non carbon coordinating ligand,

wherein R<sub>3</sub> and R<sub>5</sub> are selected to provide a hypsochromic shift in the emission spectrum of the compound of greater than or equal to approximately 40 nm as compared with the emission spectrum of a composition with the following structure:



65. (canceled)
66. (canceled)
67. (canceled)
68. An emissive material represented by the structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40; m is at least 1 n is at least 0

X —Y is an ancillary ligand;

R<sub>2</sub> and R<sub>4</sub> are both F;

~~at least one of R<sub>3</sub> and R<sub>5</sub> is CN a substituent having a Hammett value less than about -0.17, between about -0.15 and -0.05, or greater than about 0.07;~~

each of R<sub>3</sub>, R<sub>5</sub> and R'<sub>3</sub> through R'<sub>6</sub> are independently selected from the group consisting of H, halogens, CN, ~~CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>~~ perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, alkyl, alkenyl, aryl, heteroaryl, ~~aryl or heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino)~~, where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group

69. (canceled)

70. (original) The emissive material of claim 68 wherein R<sub>3</sub> and R<sub>5</sub> are both electron withdrawing groups.

71. (original) The emissive material of claim 68 wherein R<sub>3</sub> is an electron withdrawing group.

72. (currently amended) The emissive material of claim 68 wherein the at least one substituent of the emissive material is an electron withdrawing groups ~~are~~ selected from halogens, CN, ~~CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>~~ perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, ~~C≡CR~~ C≡CR, and aryl ~~or~~ and heteroaryl groups substituted with halogens, CN, ~~CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>~~ perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, or PO<sub>3</sub>R, where R is a hydrogen, alkyl, aryl or heteroaryl group.

73. (currently amended) The emissive material of claim 68 wherein ~~at least one of R<sub>3</sub> and R<sub>5</sub>~~ is an electron donating group.

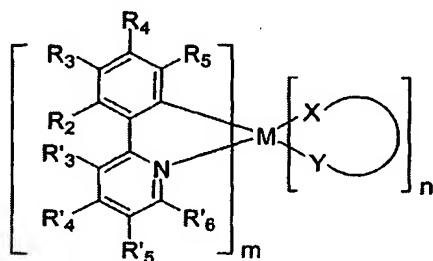
74. (canceled)

75. (original) The emissive material of claim 68 wherein R<sub>3</sub> is an electron donating group.

76. (currently amended) The emissive material of claim 68 wherein the at least one substituent of the emissive material is an electron donating groups ~~are~~ selected from alkyl, alkenyl, aryl, heteroaryl, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is a hydrogen, alkyl, aryl or heteroaryl group.

77. (original) The emissive material of claim 68 wherein the metal is selected from Ir, Pt, Pd, Rh, Re, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au, and Ag.
78. (original) The emissive material of claim 68 wherein the metal is iridium.
79. (original) The emissive material of claim 68 wherein the metal is platinum.
80. (currently amended) The composition of claim 68 wherein ~~R'<sub>4</sub> is an electron withdrawing group or an electron donating group such that if neither R'<sub>3</sub> nor R'<sub>5</sub> is an electron withdrawing group then R'<sub>4</sub> is an electron withdrawing group and~~ if neither R<sub>3</sub> nor R<sub>5</sub> is an electron donating group then R'<sub>4</sub> is an electron donating group.
81. (canceled)
82. (currently amended) The emissive material of claim 80 wherein ~~neither R<sub>3</sub> nor R<sub>5</sub> is an electron withdrawing group and~~ wherein R'<sub>4</sub> is an electron withdrawing group.
83. (canceled)
84. (currently amended) The emissive material of claim 80 wherein ~~at least one of R<sub>3</sub> nor~~ and R<sub>5</sub> is an electron donating group, and R'<sub>4</sub> is an electron withdrawing group.
85. (currently amended) The emissive material of claim 80 wherein ~~the at least one substituent of the emissive material is an~~ at least one substituent of the emissive material is an electron withdrawing groups ~~are~~ selected from halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C≡CR, and halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, or PO<sub>3</sub>R, where R is a hydrogen, alkyl, aryl or heteroaryl group.
86. (currently amended) The emissive material of claim 80 wherein ~~the at least one substituent of the emissive material is an~~ at least one substituent of the emissive material is an electron donating groups ~~are~~ selected from alkyl, alkenyl, aryl, heteroaryl, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino), where R is a hydrogen, alkyl, aryl or heteroaryl group.
87. (original) The emissive material of claim 80 wherein the metal is selected from Ir, Pt, Pd, Rh, Re, Os, Tl, Pb, Bi, In, Sn, Sb, Te, Au, and Ag.

88. (currently amended) A light emitting device comprising an organic layer, the organic layer comprising a composition represented by the general structure:



wherein M is a heavy metal with an atomic weight of greater than or equal to 40; m is at least 1 n is at least 0

X -Y is an ancillary ligand;

R<sub>2</sub> and R<sub>4</sub> are both F;

~~at least one of R<sub>3</sub> and R<sub>5</sub> is CN a substituent having a Hammett value less than about -0.17, between about -0.15 and 0.05, or greater than about 0.07;~~

each of R<sub>3</sub>, R<sub>5</sub> and R'<sub>3</sub> through R'<sub>6</sub> are independently selected from the group consisting of H, halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub> perfluoralkyl, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, C-CR C≡CR, alkyl, alkenyl, aryl, heteroaryl, ~~aryl or heteroaryl groups substituted with halogens, CN, CF<sub>3</sub>, C<sub>n</sub>F<sub>2n+1</sub>, trifluorovinyl, NO<sub>2</sub>, CO<sub>2</sub>R, C(O)R, S(O)R, SO<sub>2</sub>R, SO<sub>3</sub>R, P(O)R, PO<sub>2</sub>R, PO<sub>3</sub>R, OR, SR, NR<sub>2</sub> (including cyclic-amino), and PR<sub>2</sub> (including cyclic-phosphino)~~, where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group

89. (canceled)

90. (currently amended) The light emitting device of claim 88 wherein R'<sub>4</sub> is an electron withdrawing group or an electron donating group such that if neither R<sub>3</sub> nor R<sub>5</sub> is an electron withdrawing group then R'<sub>4</sub> is an electron withdrawing group and if neither R<sub>3</sub> nor R<sub>5</sub> is an electron donating group then R'<sub>4</sub> is an electron donating group.